

REMARKS

This responds to the Office Action dated on January 7, 2008.

Claims 1, 9, and 11 are amended. Claims 2-3 and 12-13 are canceled. Claims 1, 4-5, 7-11, and 14-17 are now pending in this application.

§112 Rejection of the Claims and Objection to the Specification

Claims 1-10 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The specification was correspondingly objected to on the basis of the amended claims introducing new matter. The rejections are traversed. In the pending claims before the present amendment, the term “short-term interval” was substituted for “discrete time interval” as used in the specification. A discrete time interval merely refers to a separately distinct time interval within the long-term interval. Applicant believes that there is no substantive difference between the terms in the present context. However, Applicant has amended the claims herein to make the issue moot.

§103 Rejection of the Claims

Claims 1-5, 7 and 9-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Levine (U.S. Patent No. 6,748,274) in view of Samuelsson (U.S. 7,050,857) and further in view of Conley (U.S. Patent No. 6,418,340). Claims 8 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Levine, Samuelsson and Conley in view of Palmer (U.S. Patent No. 5,830,150). The rejections are traversed and reconsideration is respectfully requested.

Independent claims 1 and 11 recite systems for collecting and displaying electrograms so that clinically significant changes in the morphology of those electrograms can be readily ascertained. The morphology of electrograms exhibit a certain amount of random variation. For this reason, the systems of claims 1 and 11 generate and display representative electrograms that are time averages of electrograms collected at different times. Electrogram morphologies may also vary in accordance with heart rate. The system of claim 1 generates representative electrograms that are time averages of electrograms recorded during a discrete time interval only when the patient's heart range is within a particular specified range. The system of claim 1 generates a plurality of such representative electrograms for a plurality of such discrete time

intervals within a specified long-term time period and then simultaneously displays the representative electrograms as indexed by time. A clinician is then able to ascertain how the morphology of a patient's electrogram changes over time with the variation in electrogram morphology due to heart rate being removed. Claim 11 recites a system in which a plurality of representative electrograms are generated, where each such representative electrogram is a time average of electrograms recorded only when the patient's heart range is within a different specified range. The system of claim 11 then simultaneously displays the representative electrograms as indexed by heart rate. A clinician is then able to ascertain how the morphology of a patient's electrogram changes with respect to heart rate with the random variation in morphology being removed.

Applicant's understanding of the cited prior art references is as follows. Levine appears to describe the collection and display of location-specific electrograms, event records identifying the occurrence of certain events, and counters for the number of event occurrences. Although there is a description of the maintaining separate bins in order to count the number of particular events as a function of heart rate (e.g., at col 14, lines 24-35), there is no description relating to either the time averaging of electrograms or to the collection of electrograms recorded only when the patient's heart rate is within a particular range. Conley appears to describe the display of cardiac data such as electrograms collected during arrhythmic episodes, where the cardiac data may be selectively displayed according to episode criteria that may include heart rate.

Samuelson appears to describe the simultaneous display of multiple electrograms collected at different times. None of the cited references appear to contain teachings relating to the generation and simultaneous display of a plurality of representative electrograms, where the representative electrograms are either: 1) time averages of electrograms collected only when a patient's heart rate is within a particular range and indexed by time as recited by claim 1, or 2) separate time averages of electrograms collected when the patient's heart rate is within a plurality of different heart rate ranges and indexed by heart rate as recited by claim 11.

Applicant does not believe that the teachings of the cited references address the problem dealt with by the claimed inventions of enabling the ascertaining of changes in electrogram morphology over time or with respect to heart rate. Applicant therefore submits that the recitations of claims 1 and 11 are not rendered obvious by the prior art of record. Applicant

further believes that the recitations of the dependent claims are neither taught nor suggested by the prior art of record in the context of their combination with the subject matter of claims 1 or 11. Withdrawal of the rejections is respectfully requested.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (847) 432-7302 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(847) 432-7302

Date April 7, 2008

By J. Kevin Parker
J. Kevin Parker
Reg. No. 33,024

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 7th day of April 2008.
Kate Gannon

Name

Signature